

**Commonwealth of Kentucky**  
**Division for Air Quality**

**PERMIT APPLICATION SUMMARY FORM**

Completed by: Ben Markin

GENERAL INFORMATION:

Name:	TVA Marshall County Generating Station
Address:	6264 Industrial Parkway, Calvert City, KY 42029
Date application received:	June 11, 2007
SIC/Source description:	4911/ Electric Generation
AFS(10-digit) Plant ID:	21-157-00053
Source AI #:	39146
Permit number:	V-05-055R2

APPLICATION TYPE/PERMIT ACTIVITY:

<input type="checkbox"/> Initial issuance	<input type="checkbox"/> General permit
<input checked="" type="checkbox"/> Permit modification	<input type="checkbox"/> Conditional major
__Administrative	<input checked="" type="checkbox"/> Title V
__X_Minor	<input type="checkbox"/> Synthetic minor
__Significant	<input checked="" type="checkbox"/> Operating
<input checked="" type="checkbox"/> Permit renewal	<input type="checkbox"/> Construction/operating

COMPLIANCE SUMMARY:

<input type="checkbox"/> Source is out of compliance	<input type="checkbox"/> Compliance schedule included
<input type="checkbox"/> Compliance certification signed	

APPLICABLE REQUIREMENTS LIST:

<input type="checkbox"/> NSR	<input checked="" type="checkbox"/> NSPS	<input checked="" type="checkbox"/> SIP
<input type="checkbox"/> PSD	<input type="checkbox"/> NESHAPS	<input type="checkbox"/> Other
<input type="checkbox"/> Netted out of PSD/NSR	<input type="checkbox"/> Not major modification per 401 KAR 51:017, 1(2)(b) or 51:052,1(14)(b)	

MISCELLANEOUS:

- ☒ Acid rain source
- ☐ Source subject to 112(r)
- ☐ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Application proposes new control technology
- ☐ Certified by responsible official
- ☐ Diagrams or drawings included
- ☐ Confidential business information (CBI) submitted in application
- ☒ Pollution Prevention Measures
- ☐ Area is non-attainment (list pollutants):

**EMISSIONS SUMMARY:**

Pollutant	Actual (tpy)	Potential (tpy)
PM <sub>10</sub>	5.7	103.6
SO <sub>2</sub>	15	68.4
NO <sub>x</sub>	33.6	652.5
CO	44	1201
VOC	2.15	37
LEAD	0.14	0.14
H <sub>2</sub> SO <sub>4</sub>	0.84	10.5
Formaldehyde	0.33	24*

\* Potential is based on the emission factor estimated by the manufacturer.

**CURRENT PERMITTING ACTION:     V-05-055R2**

TVA-Marshall County Generating Station, formerly KGEN Marshall County Generating Station submitted a minor revision application on June 11, 2007 for the combustion turbine at their facility at Calvert City, Kentucky. The modification includes clarification for the startup, shutdown, and fuel switching conditions, which were not elaborated in the renewal and the revised permits. Under the operating limitations:

- 1. Elapsed time for startup or shut down for each turbine shall not exceed two (2) hours.*
- 2. Each combustion turbine cycles of startup and shutdown shall not exceed two (200) hundred times per calendar year or twelve (12) consecutive months total*
- 3. A period of fuel switching shall begin when a combustion turbine initiates a decrease in load to accommodate the fuel switch and shall conclude after fifteen (15) minutes.*
- 4. The permittee shall be limited to no more than four (4) fuel switching events per combustion turbine in any twenty (24) four period (daily), with each day period beginning at midnight and ending at 11:59 PM of the same calendar day.*

Additionally, fuel switching has been added to conditions for emission limitation to reflect the operating status of the facility. The clarification does not change the current emission limit; affect the established BACT limits or change the source wide emissions. But give the facility the flexibility to operate the combustion turbines.

**PAST PERMITTING ACTIONS:**

**ADMINISTRATIVE AMENDMENT:     V-05-055R1**

The Division received an application for a change of ownership from GE Electric and Duke North America, LLC to Tennessee Valley Authority on December 27, 2006. Pursuant to 401 KAR 52:020, Section 13, this modification is an administrative change which does not warrant a significant revision. However, the permit number has been revised to reflect the change

***RENEWAL: V-05-055***

The KGen Marshall County Generating Station operates eight (8) General Electric 7EA natural gas-fired turbines rated 1192 MMBtu/hr with an output capacity of 80 megawatts (MW) each. The plant produces electricity during periods of peak electricity demand on a daily and seasonal basis, and is limited to operating 2500 hours per year or less for each unit. The plant does not belong to one of the 28 major source categories listed in 401 KAR 51:017, Prevention of Significant Deterioration (PSD) of air quality, because the gas turbines will be used without heat recovery. Simple cycle peaking units have been determined to fall outside of the 28 major source category list. The potential emissions of nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO) from this plant are more than 250 tons per year, and potential emissions of sulfur dioxide (SO<sub>2</sub>), particulate (PM), and particulate-10 (PM-10) are in excess of the significant net emission rates as presented in 401 KAR 51:001, Section 1. The initial permit for the facility was reviewed under the provisions of the PSD regulation for all these pollutants and for HAP (Formaldehyde). The source is located in a county classified as “attainment” or “unclassified” for each of these pollutants pursuant to 401 KAR 51:010, Attainment status designations.

The new Title V permit will include a renewal of the Phase II Acid Rain Permit and the NO<sub>x</sub> Budget Permit.

The facility also operates an emergency diesel pump rated 1.8 mmBtu/hr, and four (4) low sulfur fuel oil storage tanks of 519,000 gallons capacity with 9,000,000 gallons per year throughputs each is classified insignificant activity.